REMARKS

Claims 40-57 and 74 are all the claims pending in the application, of which claims 40 – 42, 50 – 57 and 74 have been rejected under 35 U.S.C. § 103 as being obvious over Gu et al., and claims 43, 48 and 49 have been rejected under 35 U.S.C. § 102 as anticipated by Tayebati. The claims are amended for precision and the rejections are traversed.

The invention is distinguished in that the attenuation found in Gu's optical switch/down-counter is not controllable in a manner such that Gu's system produces constant energy pulses despite, e.g., changes in amplifier gain with varying repetition rate. Further, the attenuation in Gu is not subject to the kind of feedback control which would be necessary to achieve such an end.

Expanding upon the latter point first, the Examiner points to the "control electronics" in Fig 7c which has a lead line connected to Gu's system elements including the down-counter and the amplifier pump diodes. Apparently from this block diagram alone, the Examiner makes a leap of logic to reach the conclusion that it would be obvious to obtain constant energy pulses by accounting for the gain of the amplifier at different rep rates and adjusting the attenuation of the down counter/optical switch accordingly. Although the Examiner can rightly rely upon suggestions and inherencies found in the reference, he should not ignore what the specification actually discloses about the operation of the system of this figure. Paragraph [0158], which provides the sole written disclosure on the Fig. 7c embodiment, clearly teaches contrary to the Examiner's conclusion. It is apparent from this paragraph that the down counter/optical switch

here is first used to "match" the rep rates of the seed amplifier and the power amplifier as described in the passage below:

> "The modulator (e.g., a down-counter or divider) is generally used when the repetition rates are different between the power amplifier and seed laser. Usually, the repetition rate from a mode locked seed laser is relatively high, in the range of MHZ. However, as a result of rated average limited power the repetition rate requirement for the power amplifier may be in the range of a few to hundreds of KHz. Hence, the device operates as a "down-counter" or "pulse picker"...

See also paragraph [0099], which describes selecting every 1000^{th} pulse to match a seed rep rate of 50 MHz to a power amp rep rate of 50 KHz. The 50 KHz rate can of course be further divided/selected to deliver the desired pulses to the target. Even a non-integer divisor can be used and varied to synchronize the pulses to movement of the target. See paragraph [0099], and the mention of using control signals "based on position and/or velocity information" for synchronizing to other (moving) components of the system in paragraph [0158], which is referring to the same concept.

The above is the sum total of what Gu teaches regarding the use of down-counting or pulse attenuation in his system. There is no mention, suggestion or slightest hint that one might try to dynamically control attenuation to maintain constant energy output pulses. As the Examiner would recognize, this sort of function would ordinarily require some sort of feedback control over attenuation, yet Gu does not describe a feedback system or even mention the term "feedback" within his disclosure. Further, given that Gu directly states that in his system there is "an engineering tradeoff between the energy of a given pulse, the number of pulses, and the

repetition rate", it seems apparent that Gu understands that the energy levels of given pulses will not be the same, but will in fact depend on the rep rate. This is of course precisely the outcome which the present invention avoids.

In view of the above, Applicants submit that the Examiner's conclusion of obviousness in this case is not supported by the actual disclosure of the reference. The specification teaches a system where the energy of individual pulses will naturally and inevitably vary with repetition rate. There is no suggestion of control over the attenuation in accordance with energy level at the output, and the latter is not even measured, much less fed back for control purposes.

Finally, claim 74 remains unamended, as Applicants find no disclosure whatever in Gu of a controller which cuts the pump diode current when the repetition rate is not properly controlled. This acts as important safety mode if, e.g., the mode-locked laser fails to operate properly.

In response to the rejection based upon Tayebati, claim 43 has been amended to indicate the wavelength control/feedback mechanism more clearly, and to make explicit that a fiber laser system is being claimed. The arrangement of the reference is for wavelength control for tunable laser diodes, e.g: VCSEL-type devices, which are of course of entirely different structure and constitution and do not require active stabilization in the manner of fiber systems. Clarifying amendments make clear that the invention is not directed to wavelength tuning of a diode laser.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

/Richard Turner/
Richard C. Turner
Registration No. 29,710

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: March 25, 2008